Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)	
Amendment of Part 101 of the Commission's Rules to Facilitate the Use of Microwave for Wireless Backhaul and Other Uses and to Provide Additional Flexibility to Broadcast Auxiliary Service and Operational Fixed Microwave Licensees	)	WT Docket No. 10-153
Petition for Rulemaking filed by Fixed Wireless Communications Coalition to Amend Part 101 of the Commission's Rules to Authorize 60 and 80 MHz Channels in Certain Bands for Broadband Communications	)	RM-11602

COMMENTS OF METROPCS COMMUNICATIONS, INC.

MetroPCS Communications, Inc. ("MetroPCS"),[1] by its attorneys, hereby respectfully submits its comments in response to the *Second Further Notice of Proposed Rulemaking* and *Second Notice of Inquiry* released by the Federal Communications Commission (the "Commission" or "FCC") on August 3, 2012.[2] MetroPCS full-heartedly supports the

[1] For purposes of these Comments, the term "MetroPCS" refers collectively to MetroPCS Communications, Inc. and all of its FCC license-holding subsidiaries.

[2] In the Matter of Amendment of Part 101 of the Commission's Rules to Facilitate the Use of Microwave for Wireless Backhaul and Other Uses and to Provide Additional Flexibility to Broadcast Auxiliary Service and Operational Fixed Microwave Licensees; Petition for Rulemaking filed by Fixed Wireless Communications Coalition to Amend Part 101 of the Commission's Rules to Authorize 60 and 80 MHz Channels in Certain Bands for Broadband Communications, *Second Report and Order, Second Further Notice of Proposed Rulemaking, Second Notice of Inquiry, Order on Reconsideration, and Memorandum Opinion and Order*, WT Docket No, 10-153, RM-11602 (rel. Aug. 3, 2012). When referring specifically to the *Second*

Commission's continued efforts to increase the availability and lower the costs of microwave backhaul facilities. In support, the following is respectfully shown:

I. INTRODUCTION

The demand for mobile wireless broadband is growing exponentially. Wireless providers have spent, and continue to spend, significant amounts of capital and other resources to keep up with this demand and deploy broadband capability throughout the country. MetroPCS has firsthand experience in seeking to satisfy this seemingly insatiable demand for mobile wireless broadband service. MetroPCS has invested hundreds of millions of dollars in new technologies allowing it to become the first mobile wireless provider to launch commercial 4G LTE services in the United States, and also to offer both the first LTE handset and the first 4G LTE Android handset in the world. Most recently, MetroPCS launched the world's first commercially available Voice over LTE Service ("VoLTE") and VoLTE-Capable 4G LTE smartphone.

MetroPCS recognizes that it would not have been able to reach such important innovative milestones without access to two important resources: (1) mobile wireless broadband spectrum; and (2) suitable and cost-effective backhaul facilities equipped to run these innovative networks. Such resources, however, are becoming increasingly scarce as technology continues to expand and the market for wireless services continues to grow. One of the limitations on the ability of broadband providers to meet this growing demand is the availability of cost effective backhaul facilities. Regardless of the amount of mobile spectrum, the lack of backhaul competition can further limit the capacity of a network to handle increasing broadband data demands.

Report and Order portion of the document, we will refer to the "*Second Report and Order*." When referring specifically to the *Second Notice of Proposed Rulemaking* portion of the document, we will refer to the "*Second Notice of Proposed Rulemaking*." When referring specifically to the *Notice of Inquiry* portion of the document, we will refer to the "*Notice of Inquiry*."

MetroPCS applauds the Commission's recent *Second Report and Order,* which recognizes the significant role that wireless microwave backhaul facilities can play in the rapid deployment of mobile wireless networks. The recognition that "[b]roadband is indispensable to our digital economy"[3] has helped drive the efforts of the Commission to take appropriate actions to increase the use of spectrum for wireless backhaul and lower the cost of deploying wireless backhaul in certain areas. Specifically, in the *Second Report and Order*, the Commission provides licensees with greater flexibility to use smaller antennas, utilize wider channels and operate with updated efficiency standards. By taking these actions, the Commission has ensured that microwave can be a solution for the extensive backhaul required for broadband networks and their continued exponential growth.

MetroPCS agrees that the Commission should continue to "improve and modernize [the] rules and increase the flexibility of [the] Part 101 rules to promote wireless backhaul."[4] As MetroPCS previously has noted, the demand for wireless backhaul is growing at an accelerating rate, a trend that will continue as the competition of mobile broadband continues to increase and small cells are increasingly deployed.[5] Thus, MetroPCS believes that the Commission should adopt a number of its proposed rules in order to allow for additional flexibility for wireless backhaul. Specifically, MetroPCS supports the use of 2 foot antennas in the 13 GHz band. Permitting the use of these smaller antennas will lower costs for licensees and will do so without materially increasing the risk of interference to other users in the band. Furthermore, the

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[3] *Second Report and Order* ¶ 1.

[4] *Second Further Notice of Proposed Rulemaking*, ¶ 62.

[5] Comments of MetroPCS in WT Docket No. 10-153, RM-11602 (filed Oct. 4, 2011) ("*2011 MetroPCS Microwave Backhaul Comments"*). MetroPCS currently makes extensive use of distributed antenna systems in certain of its CDMA/EVDO networks. Small cells will allow for similar benefits for LTE and microwave would be a viable solution for the necessary backhaul.

Commission should take this opportunity to provide licensees with additional options for resolving interference. MetroPCS supports permitting licensees to utilize intermediate upgrades as it will reduce costs for licensees and will increase investment in the industry – both of which will help foster the deployment of broadband infrastructure throughout the country – provided, of course, that such intermediate upgrades will resolve interference.

Finally, the Commission should initiate a new proceeding to comprehensively review the Part 101 antenna standards. MetroPCS agrees that the standards should be revised "to reflect the proper current balance of manufacturing capabilities, spectral efficiency, and cost."[6] In doing so, the Commission can create additional opportunities for wireless providers to procure backhaul facilities and continue to deploy broadband services.

II. METROPCS SUPPORTS THE USE OF SMALLER ANTENNAS IN THE 13 GHZ BAND

MetroPCS applauds the Commission's recent decision to permit smaller antennas in the 6, 18 and 23 GHz bands[7] – a concept MetroPCS previously has supported.[8] As many commenters – including MetroPCS – have recognized, relaxing the antenna standards in these bands reduces both capital costs (through reduced antenna costs), as well as operating costs (through reduced lease payments), and stimulates increased investment in the wireless industry.[9] Indeed, these benefits have also been recognized by the Commission to be a significant factor in

[6] *Notice of Inquiry*, ¶ 30 (*quoting* Comsearch Comments at 2).

[7] *Second Report and Order*, ¶ 18.

[8] *2011 MetroPCS Microwave Backhaul Comments*, 4-6.

[9] *Id.* at 4; *see also Second Report and Order*, ¶ 12.

its decision-making.[10] In fact, the Commission found that "these benefits outweigh any potential costs"[11] and allowing the use of smaller antennas in the 6, 18, and 23 GHz bands "can be accommodated without materially increasing the interference risk to other licensees."[12] Further, smaller antennas represent less wind area, reducing the amount of additional structural strengthening required (if any) to put up microwave antennas. Finally, smaller sized antennas will lead to less visibility which should help to reduce opposition to the placement of microwave antennas for aesthetic reasons.

The same benefits that result from permitting smaller antennas in the 6, 18 and 23 GHz bands will also result from relaxing the antenna requirements for the 13 GHz band. MetroPCS agrees that allowing the use of two foot antennas in the 13 GHz band will ultimately "reduce costs, stimulate investment in the industry, and increase the number of available microwave dishes on sites."[13] Indeed, various parties have recognized that smaller antennas are more cost-effective as they are cheaper to manufacture, install, and maintain.[14] As MetroPCS has previously explained, tower space costs are often based significantly on size and weight of the antenna – and the reduction of even half a foot may save operators thousands of dollars a year.[15]

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[10] The Commission has recognized MetroPCS' example that "the cost of a microwave dish antenna is approximately $100 per foot per month. Thus, even if the revised rule allows for a reduction of just one foot, the annual savings would be $1,200, and the savings over a ten year period would be $12,000." *Second Report and Order*, ¶ 16 (*quoting 2011 MetroPCS Microwave Backhaul Comments,* 5).

[11] *Second Report and Order*, ¶ 21.

[12] *Id.* at ¶ 18.

[13] *Id*. at ¶ 12.

[14] *2011 Further Notice of Proposed Rulemaking*, 26 FCC Rcd 11614 ¶ 73 (2011).

[15] *See supra* note 10.

Not only will smaller antennas lower operating costs, but like in the 6, 18, and 23 GHz bands, it will also lessen engineering costs required to strengthen the tower structure. Larger antennas often require carriers to undertake additional structural studies and may require additional investments to enable certain towers to sustain the higher wind loading of larger dishes. The costs of these studies and necessary structural modifications can cost hundreds of thousands of dollars per site. Considering that a system may contain tens of thousands of sites, the resulting savings can add up to millions of dollars. Therefore, if the Commission further enables the use of smaller antennas on the 13 GHz Band, carriers will find that the resulting reductions in capital and operating expenses will allow for additional funds to be further invested back into obtaining additional wireless backhaul facilities.

Additional benefits resulting from the use of smaller antennas can also be seen on the tower sites themselves. Permitting smaller antennas on the 13 GHz band will allow for more installation options at a wide variety of sites. For instance, the use of smaller antennas will create additional opportunities for dish installation at sites that would otherwise not be able to support the larger antennas due to weight, or structural, restrictions. Furthermore, smaller antennas will allow existing towers to accommodate a greater number of antennas. This additional flexibility will enable wireless providers to reduce costs and access a greater number of sites – many in critical areas such as rural sites. Utilizing existing towers will also reduce costs as the process of obtaining authorization for new towers can be time consuming and can deplete resources and could bypass any necessary local approvals. Therefore, due to the combined benefits of reduced costs, additional investments and increased installation options, the Commission should permit smaller antennas on the 13 GHz band.

III. METROPCS AGREES THAT LICENSEES SHOULD BE PERMITTED TO RESOLVE INTERFERENCE ISSUES THROUGH MEASURES OTHER THAN A CATEGORY A ANTENNA UPGRADE

The Commission's stated intent behind its most recent inquiry is to modify the current antenna standards to allow for more flexibility and provide cost-effective options for the use of microwave services licensed under the Part 101 rules.[16] There are several recommendations on the record that request additional flexibility in resolving interference concerns. In several instances, the current technique – usually supported by Commission rule – is to resolve interference by upgrading the interfering antenna to a Category A antenna. To some extent, requiring Category A antennas to resolve interference is like using a howitzer to kill a fly. While Category A antennas may solve the interference issue, they also create a whole new category of issues for the licensee or operator. Namely, Category A antennas are notorious for their stringent performance requirements.[17] Satisfying these requirements require a great deal of time and resources. Small, rural and mid-tier carriers like MetroPCS should not have to deplete their resources by upgrading to a Category A antenna if there are alternative – and less expensive – means to resolve the interference.

First, MetroPCS agrees that the Commission should continue permit licensees to reduce their EIRP – rather than requiring a Category A antenna upgrade – if the reduction will resolve an interference problem. While the Commission recognizes that "theoretically, the existing rules could allow licensees using lower EIRP to avoid having to change antennas to correct interference problems,"[18] it also expresses concern about additional interference as a result of the

[16] *Second Report and Order* ¶ 2.

[17] *See Id.* at ¶ 9.

[18] *Second Further Notice of Proposed Rulemaking*, ¶ 69.

reduced EIRP. Like the Commission, MetroPCS is unaware of any instances where lowering the EIRP has led to significant interference issues, and supports the Commission's tentative conclusion that the term "maximum EIRP" should be changed to the more subjective "authorized EIRP" in Section 101.113.[19] Reducing EIRP, rather than upgrading to a Category A antenna, will free up resources that licensees would otherwise have to dedicate to resolving the interference. It will also reduce the time necessary to resolve any interference issues. Furthermore, if a licensee can use a smaller dish and reduce power to eliminate the interference, it will result in reduced operating expenditures and continue to support the Commission's policy goals of enabling flexibility to increase broadband deployment.

Second, MetroPCS supports the proposed change to the Commission's rules that would allow a 6 GHz or 11 GHz licensee using a Category B antenna to have the option of upgrading to any antenna, rather than a Category A antenna, to fix interference issues. As noted above, upgrades to Category A antennas also mean upgrades to stricter performance requirements, and in many circumstances this upgrade is unnecessary to resolve interference as there are additional options that a licensee may take. While the rules currently "require a Category B user to upgrade to a Category A antenna if the antenna causes interference problems that would be resolved by the use of a Category A antenna,"[20] the proposed change would provide licensees additional options at lower costs to resolve interference issues. For example, an intermediate upgrade, or an upgrade from one Category B antenna to another Category B antenna with better performance characteristics may also resolve an interference problem, and would not require the licensee to take on the more arduous performance requirements. MetroPCS agrees with the Commission

[19] *See Id.* at ¶ 70.

[20] *Second Report and Order*, ¶ 71 (*citing* 47 C.F.R. § 101.115(c)).

that such an option would allow for lowered costs as a licensee may be able to maintain its operations by utilizing an existing site, including additional benefits, as described above.[21]

IV. METROPCS SUPPORTS A COMPREHENSIVE REVIEW OF ANTENNA STANDARDS

In previous inquiries on antenna standards, MetroPCS has supported similar positions to the one it presents here – allowing smaller antennas and providing additional opportunities for greater flexibility to reduce operating and engineering costs, which may be used for continued investment in the industry. Rather than continuing on the path of issuing yearly inquiries on specific spectrum bands, MetroPCS believes the Commission should institute a rulemaking proceeding to conduct a comprehensive review of the Commission's Part 101 antenna standards. The Commission recognizes that its antenna standards have not been comprehensively reviewed "in many years" and MetroPCS agrees that the time is ripe for an updated review given the recent developments that have occurred in antenna design, as well as the increasing reliance on wireless backhaul facilities.

The goal of this review should be to update the antenna standards to better reflect the current communications environment. Accordingly, MetroPCS would suggest that in its comprehensive review, the Commission consider explicitly permitting the use of non-parabolic antennas. Allowing non-traditional antenna designs would further the Commission's goal of enabling more flexible and cost-effective services, as has been noted by several commenters already.[22] In addition, although the communications environment is rapidly evolving, MetroPCS does not believe it is the proper time for the Commission to modify the definition of "congested

[21] *See supra* Section II.

[22] *See e.g.*, Comments of Clearwire, WT Docket No. 10-153, 8 (filed on Oct. 4, 2011); Reply Comments of FWCC, WT Docket No. 10-153, 3 (filed on Oct 25, 2011).

area" for the purposes of requiring antennas to meet Category A standards.[23] However, in light of the Commission's rule changes on special access and microwave backhaul, MetroPCS does believe it is important for the Commission to continue to monitor the congestion levels through a separate rulemaking proceeding, and in the event that changes do occur, seek input from the industry.

V. CONCLUSION

MetroPCS supports the Commission's continued efforts to find ways to increase flexibility in the use of microwave services licensed under Part 101 rules. In doing so, MetroPCS urges the Commission to consider the discussed modifications to the antenna requirements as they will serve the public interest by facilitating the efficient use of these spectrum bands and also continue to protect users in the band from interference. If the Commission increases the flexibility of antenna standards by allowing the use of smaller antennas and permitting licensees to take alternate measures to resolve interference, it will be reducing costs for providers so that additional investments in resources such as wireless backhaul may be made.

Respectfully submitted,

MetroPCS Communications, Inc.

/s/ Michael Lazarus

By:
Michael Lazarus
Carl W. Northrop
Jessica DeSimone

[23] *Notice of Inquiry*,¶ 80.

TELECOMMUNICATIONS LAW
PROFESSIONALS PLLC
875 15th Street, NW, Suite 750
Washington, DC 20005
Telephone: (202) 789-3120
Facsimile: (202) 789-3112

Mark A. Stachiw
General Counsel, Secretary
& Vice Chairman
MetroPCS Communications, Inc.
2250 Lakeside Blvd.
Richardson, Texas 75082
Telephone: (214) 570-5800
Facsimile: (866) 685-9618

Its Attorneys

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